

## Evaluation of ensemble forecasts

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Ensemble forecasts play an essential role in quantifying the uncertainty inherent in all weather forecasts. They give a direct assessment of the range of possible future weather scenarios. This provides forecast users with the necessary information to assess the risk of specific events that may affect their activity and to take appropriate decisions. It is important also to provide users with information about the quality of the forecasts and to demonstrate how, for example, using the ensemble can benefit decision-making.

In this talk I will review the different measures used to assess the quality of ensemble forecasts, with a focus on probabilistic scores. The simple cost-loss model of economic decision making gives a useful introduction to the evaluation of forecasts from the user's point of view, illustrating how probabilistic forecasts are inherently more valuable than deterministic forecasts. A key conclusion is that different users will not all gain the same benefit from a given forecasting system. In this framework, several traditional skill scores can be interpreted in terms of economic benefit: different scores are related to different aspects of usefulness and will be relevant to different groups of users.

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